Environmental Support to Acquisition

SUCCESS Stories

Bradley Environmental Management Team

Introduction

In 1995, the Bradley Environmental Management Team (Bradley EMT) was established to assist Program Management Office Bradley Fighting Vehicle Systems (PMO BFVS) in implementing pollution prevention, waste minimization, and environmental compliance strategies into BFVS programs. The Bradley EMT accomplishes this effort through:

- Assisting in development and implementation of an overall environmental strategy for the program.
- Conducting trade off studies of less or nonhazardous materials and manufacturing processes.
- Reviewing system requirements for environmental issues.
- Developing and implementing a hazardous materials tracking system.
- Ensuring that the program remains in compliance with federal, state, local environmental laws as well as DoD and DA regulations and requirements.

The Bradley EMT utilizes a total quality environmental management approach. As a result, the team members combine the skills and knowledge in making environmental and pollution prevention (P2) decisions.

Bradley Fighting Vehicle System (BFVS) A2 Operation Desert Storm

Background

The BFVS program consists of a family of vehicles (FoV) designed to assist infantry, cavalry, field artillery, air defense, and command and control units in completing their missions. The BFVS FoV consists of approximately 6,700 vehicles, which include M2A2/M3A2 BFVS, M2A2/M3A2 BFVS Operation Desert Storm, M2A3/M3A3 BFVS and M7 Bradley Fire Support Team vehicles (BFIST), M707 Striker Fire Support Vehicle, M6 Bradley Linebacker, and M993/M993A1 Multi Launch Rocket System (MLRS) Carrier.

Headquartered at Tank-automotive and Armaments Command (TACOM) in Warren, Michigan, the Bradley EMT comprises the PMO BFVS divisions, Program Executive Office-Ground Combat Support (PEO – GCS), and representatives of the following organizations and companies:

- TACOM Research, Development & Engineering Center (TARDEC) Materials/Environment Team (MET)
- TACOM General Law Division
- United Defense Limited Partnership Ground Systems Division (UDLP GSD)
- Red River Army Depot (RRAD)
- U.S. Army Environmental Center (USAEC)
- U.S. Army Research Laboratory (ARL)
- Fort Benning, Environmental Management Division (EPMD)
- Fort Hood Pollution Prevention Office

ARL—U.S. Army Research Laboratory

GSD—Ground Systems Division

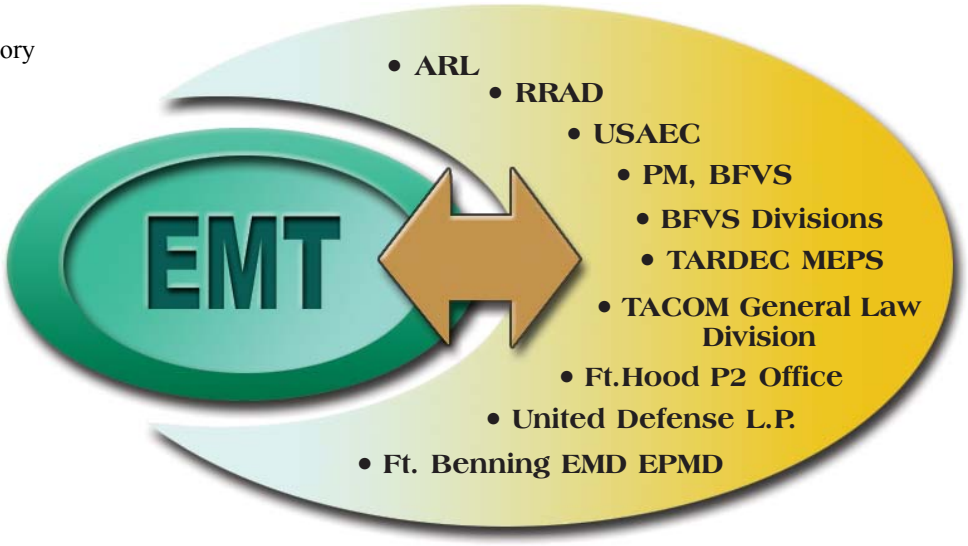
LP—Limited Partnership

MEPS—Materials/Environmental/ Packaging/Special Process

RRAD—Red River Army Depot

TARDEC—Tank and Automotive Research, Development & Engineering Center

USAEC—U.S. Army Environmental Center



The Bradley EMT also receives support from the Army Acquisition P2 Support Office (APPSO), the U.S. Army Materiel Command (AMC), and U.S. Army Forces Command (FORSCOM). Representatives from PEO-GCSS, PMOs M1 Abrams Tank Systems and XM2001 Crusader also participated in the Bradley EMT meetings.

The Bradley EMT holds quarterly meetings at various member sites throughout the year. The meetings include the exchange of information, provide opportunities to update existing P2 efforts and plan future P2 projects, and address environmental issues. Between quarterly meetings, information exchange also occurs through Bradley EMT P2 Update Sheets and the "Environmental News"
Section of the PMO BFVS web page:
www.pmbradley.org

Program Summary

The Bradley EMT's major duties and responsibilities include proactively addressing environmental concerns and incorporating P2 opportunities where feasible and applicable. The Bradley EMT follows DoD Regulation 5000.2-R guidance on environmental, safety, and occupational health (ESOH) in order to accomplish its duties and responsibilities.

Bradley EMT Duties and Responsibilities

- Preparing National Environmental Policy Act (NEPA) documentation
- Preparing a Programmatic Environmental, Safety & Health Evaluation (PESHE).
- Coordinating the BFVS A3 Environmental Quality Life Cycle Cost Estimate (EQLCCE).
- Maintaining a hazardous material tracking system and database.
- Identifying environmentally acceptable alternatives for industrial processes that use hazardous materials and generate hazardous waste.
- Evaluating potential impacts of certain processes on the environment and providing recommendations to reduce or eliminate them.
- Designing vehicle systems with an awareness of potential environmental impacts during manufacture, remanufacturing, upgrade, retrofit, testing, operation, and disposal.

Through the preparation of NEPA documentation, PESHEs, and the EQLCCE, the Bradley EMT monitors environmental compliance issues while developing a proactive P2 program. Through this approach, the Team prioritizes its P2 efforts to eliminate, reduce or alter processes that use the greatest volumes of hazardous materials. These efforts assist the facilities and installations to remain in compliance with their discharge permits, and results in reduced costs associated with use of hazardous materials and disposal of hazardous wastes. Another corresponding benefit comes from decreased safety and occupational health issues due to hazardous material use and waste handling.

Accomplishments

The Bradley EMT manages all P2 programs for PMO BFVS. Through their involvement, the Team members directly contribute to the various project objectives and tasks. This process ensures that various members' expertise and organizational knowledge became part of the effort. As a result, the projects address ESOH concerns at the earliest possible time.

EMT's system engineering approach required that all efforts meet the following criteria:

- Reduce or eliminate hazardous materials used in manufacturing/ vehicle integration and fielding operations.
- Reduce associated costs and ESOH issues.
- Ensure that vehicle system military readiness does not decrease.
- Ensure that proposed alternatives are applicable to present and future Bradley vehicle systems.
- Provide equal or superior vehicle performance.

In order to establish a comprehensive approach, the Bradley EMT uses a system engineering methodology to reduce BFVS FoVs' environmental impacts. The Bradley EMT includes this approach in both its membership and management structure. Through the integration of all the disciplines and specialty groups, the Bradley EMT has formed a structured development process. This process looks at issues that proceed from vehicle production to operation to demilitarization/disposal. While developing efforts to reduce current and future issues, the Bradley EMT considers all known factors including technical, ESOH, and business issues. This allows the Bradley EMT to achieve its goal of providing a vehicle system with equal or superior performance while meeting the user's requirements.

The Bradley EMT contains representatives from functional groups commonly associated with a system engineering approach. This includes the PMO BFVS divisions' expertise in respective areas of engineering, logistics, management and acquisition support. RRAD and UDLP aides the Team with their proficiency in manufacturing, vehicle integration, and disposal activities. FORSCOM representatives assist the Bradley EMT in identifying issues related to the operation and maintenance of the BFVs. Other Team members reinforce the Team's activities with their overall knowledge of processes and own perspectives of issues. While a PM BFVS representative acts as the Bradley EMT's chairperson, any Team member can raise any ESOH issue or potential pollution prevention alternative. This results in a free exchange of ideas and develops a Team approach for addressing issues.

Successes

Bradley EMT's efforts have resulted in the following success:

- Eliminated > 90% of Cd usage in Bradley TDPs
- Removed Carbomastic 15 coating (7.9lbs of toluene & methyl ethyl ketone
- OEM coating procedure changes resulted in reduced VOC usage by 16.7 lbs
- Replaced P-D-680 solvents, Freon 113, and 1,1,1-trichloroethane with non-hazardous solvents
- Removal of Halon 1301 – 55,000lbs in engine compartment & 7,610 in handheld extinguishers
- Elimination of fluid spills during powerpack breakdowns

Current and Future Efforts

- Non-Chromate aluminum pretreatment
- Direct-to-metal/extended recoatable primer
- HAPs free, low VOC coating system
- "High Performance" HVLP paint application technology
- Cadmium free electrical connectors
- Lead free electrical solder

U.S. Army Environmental Center
Attn: SFIM-AEC-PCA
Aberdeen Proving Ground, MD 21010-5401
1-800-USA-3845

Conclusion

The Bradley EMT assists PMO BFVS in executing a proactive environmental strategy. This strategy is based on a strong pollution prevention approach that has resulted in the weapon system programs' continual environmental compliance and military readiness while providing cost savings and avoidance. The Team's environmental strategy has its basis on a broad, long-term philosophy. Rather than seeking one high-payoff initiative, the Bradley EMT looks across the entire weapon systems' life cycle and united government and industry to resolve real or potential environmental issues. Over the long term, this approach will result in many more successes and an environmental stewardship program that maintains a strong technical base and solid management commitment.